THE

EXPLANATION

AND

USE

OF THE

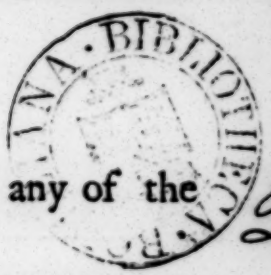
Collateral Arithmetical Table.

SHEWING

By the Help of a few Additions only, the Value, in Sterling Money, of any Number of Pieces of the Current Coin in *England*;

AND

Alſo to pay any Sum of Money in any of the ſame Pieces.



By BENJAMIN WEBB,

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TO THE

WORSHIPFUL COMPANY

OF

HABERDASHERS.

GENTLEMEN,

IT is with the utmoſt Deference I offer your Worſhips this ſlender Performance, as a ſmall Tribute of Gratitude, for the many Favours I ſtand indebted to your Worſhips. Your kind Patronage, and Protection to this Piece, have emboldened me to proſecute another Work, which I flatter myſelf will be very uſeful, for the quick Diſpatch of Buſineſs in general; and permit me to aſſure your Worſhips, that nothing ſhort of the favourable Opinion, you

are pleaſed to entertain of my Abilities, could encourage me to proceed forward with ſuch an elaborate Undertaking. And further, I muſt confeſs, that I think myſelf not only happy in your Worſhips Eſteem; but greatly honoured in being appointed by your Worſhips Maſter of the Free Grammar School founded by *Throgmorton Trottman*, Eſq; where I may have an Opportunity to implant in the ſame Spot that Erudition I received under your Worſhips Patronage.

I am,

With utmoſt Gratitude and Reſpect,

GENTLEMEN,

Your moſt obedient,

and devoted Servant,

Free Grammar School
in *Bunhill Row*,
June 24, 1758.

BENJAMIN WEBB.

THE

PREFACE.

HOW far this Table of Coins may be of real uſe in Buſineſs I will not venture to ſay; but if it ſhould meet with a favourable Reception from the Public, as it has the Approbation of my Friends, it will be an additional Inducement for me to publiſh with all ſpeed a new Set of ſtill more uſeful Tables, that are in great forwardneſs, and that have the Plan of this Table for their Baſis, and which I flatter myſelf will be deemed no ſmall Improvement in Calculation.

As the Size of the Engraved Table, which I deſigned as an Ornamental Piece for Compting Houſes, &c. has rendered it unfit for the Pocket-Book, I have here annexed one of a ſmaller Conſtruction, omitting the Table of Reſiduals, as I have in this Treatiſe laid down a Rule, whereby to determine their Value.

As

PREFACE.

As the Plan, whereon this Table is conſtructed, is entirely new, and has ſeemingly opened a large Field for Improvement; and as the Facility of performing all the Operations is ſuch, as to require nothing more than Addition and a little reaſoning, I humbly conceive it will be of no ſmall Service to thoſe, who have but an indifferent Knowledge of Figures, and for whoſe uſe I at firſt principally deſigned it. Therefore ſubmitting it to the Candour of the Public I ſhall proceed to it's Uſe and Explanation.

A COLLATERAL ARITHMETICAL TABLE, *shewing by the Help of a few Additions only, the Value of any Number of the following Pieces of Coin in Sterling Money. And likewise to pay any Sum of Money in any of the same Pieces.*

The Sterling Value of	1	2	3	4	5	6	7	8	9
Pieces of £3 : 12 : —	36	72	108	144	18	216	252	288	324
Pieces of 1 : 16 : —	18	36	54	72	9	108	126	144	162
Ditto — : 18 : —	9	18	27	36	45	54	63	72	81
Ditto — : 9 : —	45	9	135	18	225	27	315	36	405
Ditto — : 4 : 6	225	45	675	9	1125	135	1575	18	2025
Moidores 1 : 7 : —	135	27	405	54	675	81	945	108	1215
Half ditto — : 13 : 6	675	135	2025	27	3375	405	4725	54	6075
Quarter d° — : 6 : 9	3375	675	10125	135	16875	2025	23625	27	30375
Guineas 1 : 1 : —	105	21	315	42	525	63	735	84	945
Half ditto — : 10 : 6	525	105	1575	21	2625	315	3675	42	4725

THE

EXPLANATION.

THIS Table is divided into nine Columns, and the Head of each Column is number'd in a regular Order with the nine Digits, thus, 1, 2, 3, 4, 5, 6, 7, 8, 9.

On the left Hand ſide of the Table is the Value in Sterling Money of the ſeveral Pieces of Coin, and againſt each Piece of Coin, are contained in a Collateral Line under the nine Digits, Artificial Numbers.

The nine Digits at the Head of the Table, may in this Caſe be conſidered as Indices, and are here deſigned to anſwer univerſally any Number, whether whole or broken, for 1 by adding a Cypher or Cyphers to it will ſignify 10, 100, 1000, 10000, *&c.* and ſo of the reſt; as 2 may repreſent 20, 200, 2000, 20000, *&c.* as occaſion requires: hence we ſee, that the nine Digits variouſly diſpoſed conſtitute any Number whatever.

Under the Table of Coins is one of a ſmaller Conſtruction, *viz.* a Table of Reſiduals, whereby is ſhewn the Value of Remainders.

THE

USE

OF THE

TABLE.

EXAMPLE I.

LET it be required to find the Value of 1285 Pieces of 36 *s.* each in Sterling Money.

In the Line oppoſite to Pieces of £ 1 : 16, under the Head Figure 1 I find 18. Now as 1 in this Caſe repreſents 1000 Pieces of 36 *s.* the correſponding Number 18 cannot denote leſs than £ 1800. The next Figure is 2 or 200 Pieces of £ 1 : 16 each; to find the Value of which; in the ſame Line, under the Head Figure 2 you will ſee 36, which cannot in this Caſe mean no more than £ 36 for 200 Pieces of 36 *s.* each are more than £ 36, and therefore muſt be underſtood to denote £ 360. The next are 80 Pieces of 36 *s.* each, to find which, guide your Eye directly along the ſame Line till you come under the Head Figure 8 and you will find 144 or £ 144 for 80 Six and Thirties muſt equal that Sum, for it would be abſurd to imagine that 80 Pieces of 36 *s.* each amount to no more than £ 14 and 4 Parts. The next Figure is 5 or 5 Pieces of 36 *s.* each, to find the Value of which againſt Pieces of £ 1: 16, and under the Head Figure 5 I find 9 or £ 9. Now theſe Numbers ſet down in Order, and added together, make £ 2313. See the Work.

1000 Pieces

1000	Pieces of £ 1 : 16 each —	£	1800
200	Ditto — — — —		360
80	Ditto — — — —		144
5	Ditto — — — —		9
In all 1285	Pieces amount to	£	2313

EXAMPLE II.

What is the Sterling Value of 660 Moidors?

Againſt Moidors under the Head Figure 6 or 600 we have 81; now this cannot denote £ 81, for 600 Moidors make above that Sum, but rather £ 810. The next to 600 Moidors is 60, now the ſame Head Figure will in this Caſe give no more than £ 81, for 60 Moidors cannot exceed that Sum. Thus 660 Moidors amount to £ 891. See the Work.

600	Moidors — —	£	810.
60	Ditto — — —		81.
660			891.

EXAMPLE III.

Let it be required to find the Value in Sterling Money, of the following 'Ports, *viz.* 87 Moidors 104 Pieces of £ 1 : 16 : each; 120 half Moidors, and 50 Quarter Moidors.

To find the Value of 80 Moidors—Seek the Head Figure 8, in this Caſe 80, and guide your Eye downwards, until you come againſt Moidors, and you will find 108 or £ 108. Then to find the Value of

7 Moidors, look under the Head Figure 7 and in the ſame Line with Moidors you will find 945 which cannot be £ 945 or £ 94 and 5 Parts, but rather £ 9 and 45 Parts.

To find the Value of 120 half Moidors. I firſt find the Value of 100. And therefore ſeek the Head Figure 1, in this Caſe 100, and guide my Eye downwards till I come againſt half Moidors, and there find 675, which cannot denote £ 675, but rather £ 67 and 5 Parts. Then to find the Value of 20 Againſt half Moidors under the Head Figure 2, which is in this Caſe 20, I find 135; now this cannot be £ 135, but rather £ 13 and 5 Parts.

To find the Value of 50 Quarter Moidors. I ſeek the Head Figures 5 or 50, and carry the Eye downwards till I come againſt Quarter Moidors, and there find 16875; which cannot be ſo many Pounds, or £ 168 and 75, but rather £ 16 and 875.

The above Proceſs ſet in Order as under.

80 Moidors	— —	£ 108
7 Ditto	— — —	9.45
100 Half Moidors	— —	67.5
20	— — — — —	13.5
50 Quarter Moidors.	—	16.875
		215.325 or 6s. 6d.

Againſt 325 in the Table of Reſiduals you will find 6 s. 6 d.

EXAMPLE IV.

Let it be required to pay the Sum of £ 628: 13: 6 in Moidors.

Look againſt Moidors, and guide your Eye along till you ſee a Number that comes neareſt to, but under £ 600,

£600, and you will find 54 or £540, then over that Number look for the Head Figure, and you will find it 4 or 400 Moidors. For the Remainder £88 the next neareſt Sum is £81, and its Head Figure is 6 or 60 Moidores: now for the laſt Remainder £7: 13: 6 I find the next neareſt Sum is 675, which in this Caſe can be no more than £6.75 Parts, or £6 15 and its Head Figure is 5 or 5 Moidors. Thus we have

400 Moidors	—	£540		
60 Ditto	—	— 81		
5 Ditto	—	— 6: 15	or 75 Parts.	
465 Moidors amount to		£627: 15		
Add to this		— 18: 6	in Silver or what you	
		628: 13: 6	pleaſe.	

EXAMPLE V.

Let it be required to pay £100 in the following 'Ports, *viz.* Pieces of 4*s.* 6*d.* Pieces of 6*s.* 9*d.* Pieces of 9*s.* and Moidors.

Admit that I pay part of the Sum, firſt in Pieces of 4*s.* 6*d.* each, Suppoſe 100 Pieces: againſt Pieces of 4*s.* 6*d.* under the Head Figure 1, which in this Caſe is 100 Pieces, I find £22: 5 Parts, admit likewiſe that I pay another Part in Pieces of 9*s.* each. Suppoſe 100 Pieces; then againſt Pieces of 9*s.* each under the Head Figure 1, (in this Caſe 100) I find £45. For the Remainder £32: 10. Suppoſe I pay Part of it in Pieces of 6*s.* 9*d.* admit 80 Pieces. Then againſt Pieces of 6*s.* 9*d.* each, under the Head Figure 8, (in this Caſe 80) I find £27. For the Remainder, £5: 10 I find that 4 Moidors and 2*s.* in Silver will exactly make that Sum. For againſt Moidors I find under

the Head Figure 4, £ 5 and 4 Parts, or 8 *s.* and to this Sum adding 2 *s.* it amounts to £ 5 : 10. See the Work as under,

100	Pieces of 4 *s.* 6 *d.* each —	£ 22.5
100	Ditto of 9 *s.* — —	45.
80	Ditto of 6 *s.* 9 *d.* — —	27.
4	Moidors — — —	5.4
		£ 99.9 or 99 : 18
	Add to this	— — 2
		£ 100

EXAMPLE VI.

What's the Sterling Value of the following Pieces of Coin, *viz.* 200 Pieces of £ 3 : 12 each, 500 Pieces of £ 1 : 16 each, 800 Moidors, and 700 Pieces each 18 *s.*

200	Pieces of £ 3 : 12 each —	£ 720
500	Ditto of £ 1 : 16 — —	900
800	Moidors — — — —	1080
700	Pieces of 18 *s.* each — —	630
		£ 3330

EXAMPLE VII.

Let it be required to find the Sterling Value of 3283 Moidors.

3000	Moidors — —	£ 4050
200	Ditto — —	270
80	Ditto — — —	108
3	Ditto — — —	4.05
		4432.05 or 1 *s.*

Againſt 05 in the Table of Reſiduals you will find 1*s.*

EXAMPLE

EXAMPLE VIII.

Let it be required to reduce 3283 Moidors into Guineas.

This is nothing more than finding the Value of the Moidors in Sterling Money, which is done (as above,) and then paying that Sum in Guineas. Thus by the Table, I ſeek the neareſt Sum to £ 4432.05 Parts and find in the fourth Column againſt Guineas 42, in this Caſe £4200 equal to 4000 Guineas, 4 being the Head Figure or its being found in the fourth Column: for the remaining £ 232 and 05 Parts, I find the neareſt correſponding Number in the ſecond Column £ 210 equal to 200 Guineas. Then for the remainder £ 22 and 05 Parts, I find the ſame Number removed one Place to the right Hand will anſwer to £ 21 or 20 Guineas. Now the laſt remainder £ 1 and 05 I find in the firſt Column againſt Guineas, and it anſwers exactly to One Guinea: For in the Table of Reſiduals, againſt 05 I find 1 *s.*

See the ſame in Order.

4000	Guineas — —	£ 4200
200	Ditto — — —	210
20	Ditto — — —	21
1	Ditto — — — —	1.05
4221	Guineas amount to —	£ 4432.05 or 1 *s.*

Therefore 3283 Moidors are equal to 4221 Guineas. Hence we ſee that any one Species of Coin may be reduced into another by finding the Sterling Value thereof.

HOW

HOW to find the Value of the Parts or Reſiduals without the Help of the Table.

RULE.

Double the firſt Figure and call it ſo many Shillings, and if the next Figure is 5 for it add 1 Shilling: or if above 5 add one Shilling, and call the Remainder ſo many Tens, adding thereto the next Figure and call this laſt Sum ſo many Farthings, remembering to abate 1 if 25 or it's exceſs.

EXAMPLE I.

What is the Value of the Reſidual 775 of a £?

Here I double the firſt Figure 7 and its Product is 14*s*, the next Figure to it being 7, I add 1 Shilling for it, becauſe it is above 5, and the Exceſs 2 I call ſo many Tens, and adding thereto the next Figure 5, it makes in all 25, therefore abating one it leaves 24 Farthings, or 6*d*. thus the Value of the Reſidual is 15*s*. 6*d*.

EXAMPLE II.

Value 6375 of a £ Sterling.

Here I double the firſt Figure 6, and its Product is 12, the next Figure 3, being under 5, I add nothing, calling the 3 ſo many Tens or 30, and to this add the next Figure 7, then abating one becauſe it exceeds 25, we have 36, or 36 Farthings, equal to 9*d*. thus 6375 is 12*s*. and 9*d*.

EXAMPLE III.

Value 4625 of a £ Sterling.

In this Example I double the Figure 4, and its Product is 8*s*. the next Figure 6, being above 5, I add 1*s*. making 9*s*. and the remaining 1 from the 6 I call 10, adding to it the next Figure 2 which makes it 12, or 12 Farthings, abating nothing becauſe it is under 25: therefore 4625 of a £ Sterling is 9*s*. 3*d*. See the Table of Reſiduals.

FINIS.